

What is claimed is:

1. A contact slidable structure comprising:
an element having a body, an inner lead formed in the body, a terminal
electrode formed on an outer surface of the body, and a conductive
through hole penetrating the body between the inner lead and the
5 terminal electrode to form an electrical connection therebetween; and
a resilient terminal slidably placed on an outer surface of the terminal
electrode to form a contact with the terminal electrode,
wherein the conductive through hole is formed outside a contact
10 slidable area on which the contact slides when the element is
connected to the resilient terminal.
2. A contact slidable structure as set forth in claim 1, wherein the
conductive through hole is apart by at least 0.5mm from the contact
slidable area.
- 15 3. A contact slidable structure as set forth in claim 1, wherein the
resilient terminal is forced to press the terminal electrode to form the
contact.
4. A contact slidable structure as set forth in claim 3, wherein an end
t2 of the terminal electrode is apart by at least 0.2 mm from an end t1 of
20 the element.
5. A contact slidable structure as set forth in claim 4, wherein the
terminal electrode has a thickness of 3.50 μm at the end t2.
6. A contact slidable structure as set forth in claim 1, wherein the
element is a gas sensing element having an electrochemical cell for
25 measuring concentration of a predetermined component contained in a
measurement gas.

7. An electrically connecting mechanism comprising :

a first holder designed to hold an element which has a body and an electric circuit, the electric circuit including a first terminal formed on an outer surface of the body, an inner conductor disposed within the body, and a conductive through hole extending through the body to establish an electrical connection between the first terminal and the inner conductor; and

10 a second holder which holds a second terminal, said second holder designed to establish a mechanical joint to said first holder and allow the element to slide on the second terminal and make an electrical contact of the first terminal with the second terminal upon establishment of the mechanical joint to said first holder, the second terminal being elastically deformable to apply a physical pressure to the first terminal of the element through the electrical contact, 15 orientation of the physical pressure being out of alignment with the conductive through hole of the element.

8. An electrically connecting mechanism as set forth in claim 7, wherein the second holder has a hole in which the element is accommodated.

20 9. An electrically connecting mechanism as set forth in claim 7, wherein the conductive conductive through hole is out of alignment with respect to an area where the physical pressure acts upon establishment of the mechanical joint.

25 10. An electrically connecting mechanism as set forth in claim 7, wherein the second terminal has a shape deformable in a direction departing from the upper surface of the element, along a normal line

thereof.

11. An electrically connecting mechanism as set forth in claim 7, wherein the second terminal is made up of a pair of terminal elements provided in the hole so that the element is clipped between the pair of 5 terminal elements.

12. A gas sensor comprising:

a sensing element having a length and an electrical circuit sensing density of a predetermined component contained a measurement gas,

a first holder holding a first end and a portion of a side of the sensing 10 element while exerting a second end and a portion of a side of the sensing element,

a second holder having a cavity accommodating the second end and the portion of the side of the sensing element,

an inner lead embedded in the sensing element, electrically connected 15 to the electrical circuit,

an outer lead disposed on an outer surface of the sensing element,

a conductive through hole formed at the sensing element, electrically connecting the inner lead with the outer lead,

a resilient terminal affixed to an inner wall of the cavity, slidably placed 20 on the outer lead,

a lead assembled in the second holder, electrically connected to the resilient terminal,

wherein the conductive through hole is formed outside an area on which 25 pressure from the resilient terminal acts.

13. A gas sensor as set forth in claim 12, wherein the sensing element has an embedded atmospheric chamber admitting air thereinto and a

solid electrolytic substrate exposed to the atmospheric chamber, admitting the predetermined component thereinto, a solid electrolytic substrate exposed to the atmospheric chamber and a diffusion resistant layer laminated on the solid electrolytic substrate, admitting the 5 predetermined component thereinto, and

wherein the electrical circuit comprises a reference electrode affixed to a surface of the solid electrolytic substrate, exposed to the atmospheric chamber and a measurement gas side electrode affixed to the opposite surface of the solid electrolytic substrate.

10 14. A gas sensor as set forth in claim 12, wherein the conductive through hole is provided inside the area in a longitudinal direction of the sensing element.

15 15. A gas sensor as set forth in claim 12, wherein the conductive through hole is provided outside the area in a lateral direction of the sensing element.

16. A gas sensor as set forth in claim 12, wherein an end of the terminal electrode is provided inside the second end of the sensing element in a longitudinal direction of the sensing element.

17. A gas sensor as set forth in claim 12, wherein a thickness of the 20 terminal electrode is 3.50 μm .

18. A gas sensor as set forth in claim 12, wherein the terminal electrode is made up of a broader part locating on an outer surface of the ceramic element in the vicinity of the first end thereof and a narrower part extending toward the second end of the ceramic element.

25 19. A gas sensor as set forth in claim 18, wherein the conductive through hole is provided on the narrower part.